

§ 172.170

§ 172.170 Damage stability calculations.

(a) Each tankship must be shown by design calculations to meet the survival conditions in § 172.195 in each condition of loading and operation assuming the damage specified in § 172.175 for the hull type specified in Table 4 of part 154 of this chapter.

(b) If a cargo listed in Table 4 of part 154 of this chapter is to be carried, the vessel must be at least the ship type specified in Table 4 of part 154 of this chapter for the cargo.

§ 172.175 Character of damage.

(a) If a type IG hull is required, design calculations must show that the vessel can survive damage at any location.

(b) If a type IIG hull is required, design calculations must show that a vessel—

(1) Longer than 492 feet (150 meters) in length can survive damage at any location; and

(2) 492 feet (150 meters) or less in length can survive damage at any location except the transverse bulkheads bounding an aft machinery space. The machinery space is calculated as a single floodable compartment.

(c) If a vessel has independent tanks type C with a MARVS of 100 psi (689 kPa) gauge or greater, is 492 feet (150 meters) or less in length, and Table 4 of part 154 of this chapter allows a type IIPG hull, design calculations must show that the vessel can survive damage at any location, except as prescribed in paragraph (e) of this section.

(d) If a type IIIG hull is required, except as specified in paragraph (e) of this section, design calculations must show that a vessel—

(1) 410 feet (125 meters) in length or longer can survive damage at any location; and

(2) Less than 410 feet (125 meters) in length can survive damage at any location, except in the main machinery space.

(e) The calculations in paragraphs (c) and (d) of this section need not assume damage to a transverse bulkhead unless it is spaced closer than the longitudinal extent of collision penetration specified in Table 172.180 from another transverse bulkhead.

46 CFR Ch. I (10–1–11 Edition)

(f) If a main transverse watertight bulkhead or transverse watertight bulkhead bounding a side tank or double bottom tank has a step or a recess that is longer than 10 feet (3.05 meters) located within the extent of penetration of assumed damage, the vessel must be shown by design calculations to survive damage to this bulkhead. The step formed by the after peak bulkhead and after peak tank top is not a step for the purpose of this regulation.

§ 172.180 Extent of damage.

For the purpose of § 172.170—

(a) Design calculations must include both side and bottom damage, applied separately; and

(b) Damage must consist of the penetrations having the dimensions given in Table 172.180 except that, if the most disabling penetrations would be less than the penetrations given in Table 172.180, the smaller penetration must be assumed.

TABLE 172.180—EXTENT OF DAMAGE

COLLISION PENETRATION	
Longitudinal extent	$0.495L^{2/3}$ or 47.6 feet ((1/3) $L^{2/3}$ or 14.5m) whichever is shorter.
Transverse extent ¹	B/5 or 37.74 feet (11.5m) ² whichever is shorter.
Vertical extent	From the baseline upward without limit.
GROUNDING PENETRATION AT THE FORWARD END BUT EXCLUDING ANY DAMAGE AFT OF A POINT 0.3L AFT OF THE FORWARD PERPENDICULAR	
Longitudinal extent	$0.495L^{2/3}$ or 47.6 feet ((1/3) $L^{2/3}$ or 14.5m) whichever is shorter.
Transverse extent	B/6 or 32.81 feet (10m) whichever is shorter.
Vertical extent from the molded line of the shell at the centerline.	B/15 or 6.6 feet (2m) whichever is shorter.
GROUNDING PENETRATION AT ANY OTHER LONGITUDINAL POSITION	
Longitudinal extent	L/10 or 16.41 feet (5m) whichever is shorter.
Transverse extent	B/6 or 16.41 feet (5m) whichever is shorter.
Vertical extent from the molded line of the shell at the centerline.	B/15 or 6.6 feet (2m) whichever is shorter.

¹ Damage applied inboard from the vessel's side at right angles to the centerline at the level of the summer load line assigned under Subchapter E of this chapter.

² B is measured amidships.

§ 172.185 Permeability of spaces.

(a) When doing the calculations required in § 172.170, the permeability of a floodable space other than a machinery